PROSTATIC AND PERI-PROSTATIC ABSCESS.[1]

A CONTRIBUTION TO THE STUDY OF THESE CONDITIONS AND THEIR TREATMENT BY OPERATION.

BY SAMUEL ALEXANDER, M.D.,

OF NEW YORK CITY,

Attending Surgeon to Bellevue Hospital; Professor of Diseases of the Genito-Urinary System in the Cornell University Medical College.

PROSTATIC Abscess occurs frequently, but in many cases it is not recognized until the suppuration has destroyed important structures. It is customary to describe suppurations in and about the prostate and the operative treatment of these conditions in general terms, and these descriptions often are vague and unsatisfactory.

In presenting this subject it is necessary to define the exact meaning of the terms prostatic abscess and periprostatic abscess, because these are not used with the same significance by all writers.

A prostatic abscess is a localized collection of pus within the capsule of the prostate, due to an infection extending from the urethra. The abscess may be single or there may be multiple abscesses.

Periprostatic abscess is an extension of the infection from a prostatic abscess outside of the capsule. The pus in a periprostatic abscess may be confined above the triangular ligament, but it may extend into the perineum or ischiorectal region.

Prostatic and periprostatic abscess may occur as the result of tuberculous infection or as the result of malignant disease.

Abscess of the prostate occurs most frequently from the extension of an acute or of a chronic infection of the posterior urethra, especially in those who have had repeated attacks of gonorrheal urethritis. The improper use of injections or irrigations or ill-advised instrumental treatment of the urethra often is the exciting cause. Prostatic abscess

[1] Read before the New York Surgical Society, October, 1904.

may occur as a complication of urethral stricture, and usually in these cases it is the result of the frequent or violent use of instruments. It is not an uncommon complication of prostatic enlargement and occurs especially in those who habitually use a catheter. It is frequently the cause of sudden retention of urine in these cases.

A description of the pathological anatomy of prostatic abscess presents some difficulties. Post-mortem specimens of the disease, except in its later stages, rarely come under observation.

From the examination of a large number of cases at the time of operation and of a number of post-mortem specimens, I am convinced that prostatic abscess usually begins by the extension of an infection from the urethra into the gland ducts of the prostate. The infection sometimes may occur through a wound of the surface of the prostatic urethra, but infection through the gland duct is more common. The suppuration may be confined to one or more of the excretory ducts, or the infection may extend into the gland tubes and involve one or more of the prostatic lobules, and by extension it may destroy more or less of the entire gland.

Each lobule of the prostate is composed of a number of tubular glands; the excretory ducts from these empty into the urethra on each side of the verumontanum. The excretory ducts are formed by the union of smaller ducts and these latter communicate with the terminal gland tubes. The secretion from the tubules in each lobule is discharged into the urethra through one excretory duct. Infection, therefore, of a single duct should affect the tubes in only one lobule, but when there is infection of more than one duct the foci of suppuration are multiple, and these different foci frequently open into each other and form a single abscess.

Prostatic abscess is not caused always by the same infective agent—although the gonococcus seems to be the most frequent cause. The infective agent is sometimes among the least pathogenic of the pyogenic cocci, and this I think should lead us to attach much importance to the various accessory causes which render the urethra and prostate incapable of resisting even these mild pathogenic bacteria.

The non-bacterial factors are as important etiologically

as are the essential agents of infection. Among these the most active in causing prostatic abscess is the modern treatment of gonorrhœa by irrigation of the urethra from the external meatus; and the too frequent and unnecessary use of instruments in the urinary passages which is so common at the present day.

There seems to be much confusion as to the different kinds of prostatic inflammation, and clinically abscess is often mistaken for acute prostatitis. When an infection from the posterior urethra extends into the prostatic ducts, and preceding the formation of an abscess, there is an increase in the size of the prostate. This is caused by retention of the secretion in the lobules communicating with the infected ducts which are obstructed by the swelling of the mucous membrane of the urethra and by an accumulation of inflammatory exudate. The gland tubes are distended and impede by pressure the circulation in the veins. The œdema of the prostate is increased by anything which increases the congestion as, for example, by the frequency of urination and the straining to empty the bladder which are so characteristic of cases of acute prostatitis. This swelling of the prostate caused by retention of the secretion in the glands and by œdema may subside without the formation of an abscess. The excretory ducts discharge the secretions into the urethra; the obstruction to the venous circulation is thus relieved, and the swelling of the prostate subsides. Small abscesses may occur and open into the urethra and may thoroughly discharge their contents; but a small abscess which has opened into the urethra by an opening too small to efficiently drain it may be the source of great distress and annoyance to the patient. A persistent urethral discharge which relapses frequently is due often to this cause and there is always the danger of recurrence, or of an extension of the abscesses. Many cases of relapsing posterior urethritis, and many which are called chronic follicular prostatitis, are really cases of imperfectly drained prostatic abscess. A prostatic abscess may be confined within the capsule for a long time, sometimes for several weeks, without opening into the urethra. An abscess freely drained by a large natural opening into the urethra often may heal without operation, but abscesses of

the prostate which open into the urethra spontaneously often require operation.

Le Dentu's statement* that abscesses of the prostate which open spontaneoulsy into the urethra usually do so by openings proportionate to the size of the abscess cavity is contrary to my experience. Therefore when an abscess of the prostate opens into the urethra spontaneously an operation is required, unless the drainage is efficient.

The cavity of the prostate abscess as felt by the finger through a perineal opening is irregular in shape and this is especially marked when several smaller abscesses unite together. The cavity is traversed by fibrous bands which are formed of the stroma of the prostate.

Infiltration of urine does not occur always into abscess cavities which open spontaneously into the urethra, even when the openings are of large size; but when infiltration of urine does occur, the intensity of the infection usually is increased, and the suppuration extends more rapidly.

Abscess of the prostate begins in that portion of the lateral lobe which lies behind and at the side of the urethra, and the infection usually extends towards the apex of the gland. When an abscess opens spontaneously into the urethra, the opening is found upon the floor or upon the side of the urethra. It is not difficult to explain why abscess of the prostate should open in this situation; the pus follows the line of least resistance and finds its way to the urethra along the fibrous bands which separate the lobules and which converge behind the urethra at the central nucleus. The mucous membrane of the prostatic portion of the urethra upon the floor and below the verumontanum is thin, and is closely attached to the prostate; in the supramontanal region of the prostatic urethra the mucous membrane is thicker. Abscess may occur in both lateral lobes simultaneously, but usually it is confined to one side of the prostate.

When an abscess of the prostate does not open spontaneously into the urethra, but extends outside of the capsule, the pus is found between the rectum and the prostate; it

* Des Abces Chauds de la Prostate et du Phlegmon Periprostatique. Segond, Paris, 1880, page 53.

may extend into the perineum or ischiorectal fossa, and in some rare cases it may find its way into the prevesical space. I believe that periprostatic suppuration is due always to neglect or to a failure to recognize the original seat of the disease, and that it can be prevented by an early operation. The spontaneous opening of a prostatic abscess or periprostatic abscess into the rectum is regarded by many writers as a common occurrence, but this seldom happens, except in cases in which operation has been too long delayed.

I have observed that when a prostatic abscess extends into the perineum there is also suppuration about the membranous urethra which begins in or about Cowper's glands or the glands of Littré, and that the latter is the cause of the perineal infection.* In some cases the perineal suppuration seems to have extended from infection of the intrabulbar glands. I have seen not a few cases of perineal abscess in which suppurating foci above the triangular ligament were detected only after the membranous urethra had been opened and the prostate explored by the finger. In many cases of ischiorectal abscess the suppuration originates in the prostate. Segond has given an interesting explanation of the course which the pus from a periprostatic abscess follows in reaching the perineum and ischiorectal fossa.†

If a prostatic abscess opens spontaneously into the urethra, and extends also outside the capsule, and opens either into the rectum, the perineum, or the ischiorectal fossa, troublesome

---

*This observation has been confirmed by Motz and Bartrina. Ann. des Mal. des Organ. Gen Urin. November 1, 1903, page 1624.

†Des Abces Chauds de la Prostate et du Phlegmon Periprostatique, Segond, Paris, 1880, pages 86, 87.

"Les données de l'anatomie topographique montrent les différentes voies qui s'offrent au pus lorsqu'il veut sortir de sa loge. Une préparation fort simple permet d'acquérir à cet égard des renseignements précis. Il suffit d'ouvrir la loge rétro-prostatique par son bord supérieur et d'explorer ses parois pour reconnaitre immédiatement quels peuvent en être les points faibles. Voici comment il faut procéder:

"Le bassin d'un sujet, jeune ou vieux, mais sans lésion abdominale, étant séparé du tronc, le rectum sectionné et lié a son extrémité supérieure et les organes du petit bassin soigneusement respectés, on attire la vessie en avant, de manière à mettre en évidence le fond du cul-de-sac

fistulæ may result which could have been prevented by an early operation.

The symptoms of prostatic abscess and of periprostatic suppuration vary in different cases and their intensity depends upon the character and extent of the infection and the clinical conditions under which they occur. The symptoms of an abscess which occur in the course of an acute gonorrhœal infection of the urethra differ from the symptoms of an abscess in an old prostatic. A small abscess situated close to the urethra causes more suffering than a large abscess which has invaded the periprostatic tissues. A prostatic abscess cannot be distinguished always by its symptoms alone from an acute prostatitis, and a positive diagnosis can be made only by direct examination of the parts. It requires considerable practice to detect the presence of pus positively in every case.

The principal symptoms of acute prostatic abscess are partial or complete retention of urine, pain, and rectal tenesmus. These symptoms occur also as the result of other diseases of the prostate and the history of each case is necessary to a

---

recto-vésical. En ce point, on pratique sur le péritoine une incision transversale, longue de deux travers de doigt, puis, on introduit son index par l'incision, entre le rectum et l'aponévrose prostato-péritonéale. La laxité du tissu cellulaire est telle, que l'on croit pénétrer dans une bourse séreuse: sans le moindre effort, on arrive sur la face supérieure de l'aponévrose moyenne. Là, on éprouve un arrêt, et le doigt ne peut plus avancer. En arrière, on sent la paroi molle et dépressible du rectum; en avant, la prostate et les vésicules. Sur les côtés enfin, on est bridé par les solides attaches rectales des aponévroses latérales de la prostate. Si maintenant, par des pressions exercées avec la pulpe de l'index, on essaye de forcer les limites de la loge, on constate ce qui suit:

"Sur les côtés, dans toute leur hauteur depuis l'aponévrose moyenne jusqu'au niveau de la base des vésicules: résistance absolue, solide, pour ainsi dire infranchissable.

"En bas et sur la ligne médiane: résistance médiocre; l'index pénètre sans trop d'effort et gagne le périnée antérieur.

"En bas et en dehors; résistance très faible; une pression légère conduit immédiatement en pleine fosse ischio-rectale.

"En avant et sur les côtés, on est barré par la jonction de l'aponévrose prostato-péritonéale et des aponévroses latérales, ou, mieux, par l'adhérence intime de ces dernières avec avec la glande."

diagnosis. The retention of urine may develop slowly, or it may come on suddenly depending upon the acuteness of the infection and the situation of the abscess.

At the beginning of an acute prostatic abscess there is usually a distinct chill or a chilly sensation; coincident with this chill or following it the temperature rises, but usually the fever does not exceed two or three degrees above the normal. I have noticed in many cases than in twenty-four or forty-eight hours the temperature falls to normal or to nearly normal and so remains. This fact is sometimes misleading, because the majority of authors describe as one of the symptoms of prostatic abscess and periprostatic abscess a continued and irregular rise and fall of temperature; this occurs only exceptionally, and is an indication of a general septic infection.

The spontaneous opening of a prostatic abscess into the urethra is accompanied by an unusual flow of pus, the quantity depending upon the size of the abscess and the size of the opening. The pus appears at the meatus and also flows backward into the bladder, and then appears with the last urine passed at each urination. In these cases, when the drainage is imperfect this symptom persists. When the drainage is efficient, the quantity of pus rapidly diminishes, and this is associated with a diminution in the intensity of all the other symptoms.

Abscess of the prostate is often ruptured into the urethra during the rectal examination incident to diagnosis. In some cases slight pressure upon the prostate causes a flow of pus from the meatus. An abscess frequently is ruptured into the urethra during catheterism practised for the relief of the retention of urine. When abscess of the prostate occurs as a complication of prostatic enlargement, the retention of urine becomes complete, catheterism becomes more difficult, and is painful; the frequent use of the catheter is imperatively demanded and the suffering of the patient is great. In cases of this kind perineal prostatectomy is the operation of choice.

The symptoms of pain and retention are sometimes relieved when the pus from a prostatic abscess extends outside the capsule. The suppuration does not extend often into the perineum or into the ischiorectal fossa unless the abscess in the prostate is associated with abscess in Cowper's or

Littre's glands or the intrabulbar glands of the urethra, and I believe that in nearly all cases the perineal suppuration begins in these glands.

An examination by rectal touch is necessary to a positive diagnosis of prostatic abscess, and this always should be combined with counter-pressure first over the pubes and then upon the perineum. In the earlier stages of abscess it is impossible always to distinguish between the congestion and œdema of acute prostatitis and that of abscess, but I believe that acute prostatitis without suppuration is rare when the symptoms have existed for more than a few days and when there is complete or partial retention of urine. In an abscess confined to one side of the prostate, the affected lobe is usually more swollen than the other. Fluctuation or a point of softening is present in many cases, but, unless the abscess is large and the pus near the posterior surface of the gland distinct fluctuation cannot always be detected by rectal touch. If one waits for fluctuation before operating, much valuable time will be lost and important structures destroyed. I have found extensive abscess of the prostate in cases in which by rectal touch I had failed to find fluctuation.

The outline of the prostate in cases of abscess is sometimes obscured by œdema of the tissues in the anterior wall of the rectum. This is true especially in cases of periprostatic suppuration and in cases of prostatic abscess associated with suppuration about the membranous urethra.

In most cases of prostatic abscess I have found that the urine contains a larger percentage of albumen than can be accounted for by the pus. This symptom is one to which I attach considerable importance in doubtful cases. The albumen seems to be the result of an acute inflammatory œdema, the serum escaping into the urethra.

Abscess of the prostate should be recognized and operation performed before the pus has extended beyond the capsule, and when possible before the abscess has opened into the urethra. I am convinced that I have shortened the duration of the disease by operating before the signs of fluctuation could be detected by rectal examination, and in all of these cases I never have failed to find one in which there was not suppuration.

An operation is indicated at the earliest possible moment unless the abscess has opened into the urethra, but in many cases in which this has occurred, I believe an operation will hasten the recovery. An abscess which has opened into the urethra by a small opening requires operation quite as much as one which has not opened into the urethra. A periprostatic abscess always requires operation.

In treating prostatic and periprostatic abscess by operation, all suppuration foci should be freely opened and thoroughly drained; this should be done by the most direct route, with the least possible injury to surrounding structures. To this general principle I wish to add that in every case the membranous urethra should be opened and the prostatic urethra should be explored through a median perineal incision.

The principal operations which have been used in the treatment of prostatic abscess are:

1. Incision and drainage through the anterior wall of the rectum.

2. Mechanical opening of the abscess by means of a sound passed into the urethra.

3. Incision through the capsule and sheath after exposing the posterior surface of the prostate by a curved prerectal incision.

4. Drainage through a median perineal section.

It would be unnecessary at the present time to speak of opening a prostatic abscess by incision through the anterior wall of the rectum; or of opening an abscess of the prostate by an instrument passed into the urethra, except that these methods are still recommended in some modern text-books which have the imprimatur of recognized authority, it is necessary therefore to call attention to these operations even if it is only to condemn their use for reasons which should be apparent to any intelligent modern surgeon. The operation of opening an abscess through the sheath and capsule after exposing the posterior surface of the prostate by a prerectal incision is that followed by most surgeons. This operation has disadvantages, and in many cases I believe is positively contra-indicated; an extensive wound is made which opens the space between the rectum and the posterior surface of the prostate, a proceeding unnecessary, even when the suppuration has extend-

ed outside of the capsule. When an abscess is small it is sometimes hard to find by this method. The operation unless performed early does not prevent the opening of the abscess into the urethra and the formation of a urinary fistula. If the abscess has spontaneously opened into the urethra before the operation, the danger of fistula is increased. Multiple abscesses are difficult to manage by this operation. In cases of periprostatic abscess, the anterior wall of the rectum may be seriously weakened by the disease, and there is then danger of a rectal fistula if the prerectal incision is used. It has seemed to me that the convalescence after this operation is unnecessarily prolonged, and that it does not meet the necessities of these cases as efficiently as a median perineal incision.

I treat all forms of prostatic abscess by opening them into the prostatic urethra through a median perineal incision, whether the pus is confined within the capsule or has extended outside the capsule, whether it is above the triangular ligament or has extended into the perineum or into the ischiorectal fossa. I am convinced that this operation is sound in principle, and that abscesses thus treated heal promptly and with less danger to the patient than by any other method. I am sure that this operation will commend itself to those who will properly perform it and take the trouble to carry out the treatment in detail.

The technique of the operation is simple. The patient is placed in the lateral lithotomy position; the membranous urethra is opened upon a staff; the prostatic urethra is dilated and explored by the finger; a finger of the other hand is passed into the rectum, and between the two fingers the extent of the abscess cavity can be defined. It is easy to appreciate by the sense of touch the part of the prostatic urethra over the abscess cavity; and the openings when the abscess has discharged spontaneously into the urethra can be felt easily. The abscess is opened by tearing with the finger through the mucous membrane; its cavity is explored, any fibrous bands which traverse it are broken down, its floor is made level with the floor of the urethra, and the opening in the urethral wall is enlarged sufficiently to insure thorough drainage. This is done entirely with the finger; to do it efficiently requires experience; rough and unskilful mani-

pulation may cause severe hæmorrhage. A catheter, No. 28 F or No. 30 F, is introduced through the perineal wound into the bladder, and is retained by tapes fastened to a waist-band. One or two strips of gauze are passed alongside of the tube to the edge of the abscess cavity, but the latter is not packed. The tube and gauze I remove on the third day, sometimes on the second. The case is then treated as a perineal section. The patient passes all urine through the urethra before the end of the second week; the perineal wound is healed at the end of the third or fourth week. Patients are out of bed at the end of the first week. Some cases require treatment of the posterior urethra for a short time after the complete closure of the perineal wound.

In cases of periprostatic abscess in which the pus is above the triangular ligament, the abscess cavity is opened and explored by the finger through the perineal incision; this is possible provided the floor of the membranous urethra is thoroughly cut to the apex of the prostate so as to divide the lower border of the triangular ligament. A large abscess between the rectum and the prostate is to be drained by a strip of gauze passed into the cavity alongside of the perineal tube; this is removed at the end of twenty-four or forty-eight hours. When the abscess has extended into the ischio-rectal fossa an additional incision is necessary to drain this space. Perineal abscess beginning in or about Littré's or Cowper's glands or the intrabulbar glands, should be similarly treated. The treatment of these cases I have considered elsewhere.*

The treatment after operation is an important element in the quick and thorough recovery of these cases. It requires time and personal attention, but the result is an ample recompense for the trouble. I append a few cases illustrative of the points I have endeavored to make clear in this communication. These are selected as fair examples from a great many similar cases treated in my service at Bellevue Hospital.

---

* Observations upon the cause and treatment of perineal abscess and of periurethral suppurations above the triangular ligament. Medical Record, New York, October 28, 1905.

CASE I.—*Prostatic Abscess with Right Epididymitis, almost Complete Retention of Urine; Symptoms temporarily relieved by Spontaneous Opening of the Abscess into the Urethra; Recurrence of Symptoms; Operation; Recovery.*

Timothy N., aged twenty-nine years; United States; single; admitted April 7, 1902. First gonorrhœa when twenty-seven years of age; discharge lasted five months; was treated by injections. Three weeks before admission he had a second attack of gonorrhœa. On April 1 he developed an epididymitis, which confined him to bed for a week; for this he was admitted to the hospital.

On admission he had a right epididymitis and posterior urethritis. Two days later he began to have frequent urination with pain and rectal tenesmus and almost complete retention of urine.

Rectal touch showed the prostate to be enlarged, especially on the left side.. It was hot and throbbing, no fluctuation. He was treated by hot applications to the perineum, and the pain diminished, but the swelling in the prostate increased in size, and on April 12, there was fluctuation near the apex of the gland. The prostate seemed to be smaller. There was a profuse discharge from the urethra, the abscess having opened spontaneously. On April 13 the amount of discharge was increased, pain in perineum and the rectum had greatly lessened. Patient was passing urine freely.

April 14 the discharge was still profuse.

April 15, prostate was again swollen, but a marked depression could be felt on the right side, which when pressed upon caused profuse discharge of pus from the urethra.

On April 19 operation was performed. On opening the membranous urethra through the perineum, introducing the finger into the prostatic urethra, several small openings on the right side of the urethra were felt leading into an abscess cavity. At this point an opening was made with the finger and the abscess drained.

On April 22, the drainage and the bladder tube were removed.

May 3 patient passed all urine through the urethra and made a satisfactory recovery.

CASE II.—*Prostatic Abscess with Complete Retention of Urine, requiring the Use of Catheter for Ten Days; Symptoms relieved by the Spontaneous Rupture of the Abscess into the Urethra; Operation Refused; Persistent Urethral Discharge.*

James P., aged forty-four years; widower; England; admitted March 22, 1902. Had gonorrhœa when twenty-four years of age; the discharge lasted two months; no complications. Five weeks before admission he contracted a second gonorrhœa; was treated by internal medication; no local treatment. Three days before admission he began to have frequent urination, severe burning sensation along the urethra with rectal tenesmus and pain in the perineum. These symptoms increased, and on the day before admission he had complete retention of urine, which persisted until his admission to the hospital.

Examination showed a slight purulent discharge from the urethra, which contained gonococci.

Rectal touch showed the prostate swollen and indurated, especially the right lateral tube. There was œdema of the anterior rectal wall. As the result of straining at urination, he had a number of inflamed hæmorrhoids. The bladder was distended above the pubes. The urethra was free of stricture. Temperature was 100° F.; on the 30th it rose to 104° F., and then fell to normal on the 2d. A No. 14 F catheter passed easily and without great pain and forty ounces of urine were withdrawn; there was marked atony of the bladder. The urine was cloudy with pus, acid, contained albumen, but no casts. The catheter was passed at regular intervals, and the bladder was washed out with sterile saline solution once a day. On April 6 he was able to pass a few ounces of urine, which contained about one-third pus by bulk. The prostate was smaller; the abscess had ruptured and was draining into the urethra. Catheterism was continued until April 9, after which the patient was able to empty his bladder completely. The pus in the urine continued to diminish in quantity, but never entirely disappeared. On April 18 the patient was discharged at his own request. The prostate then was nearly normal in size; he was passing water about five times during the day and three times at night. Urine contained about 2 per cent. of albumen, excess of urates, moderate quantity of pus, and some red blood-cells. Operation was refused by the patient.

CASE III.—*Prostatic Abscess; Perineal Abscess; Double Epididymitis; Urethral Stricture; Abscess opened; Relapse of a Year Later; Slight Urine Leakage; Operation; Cure.*

J. M., aged thirty-one years; United States; single; admitted December 13, 1901. He had had a number of attacks of urethritis, the last attack was one year before admission. Two weeks after the urethral discharge appeared he developed an epididymitis upon both sides. An abscess then formed in the perineum, which was opened by simple incision at Fordham Hospital, New York. The wound healed promptly. A week before admission the urethral discharge returned, and two days before his admission a swelling in the perineum appeared at the seat of the former abscess; this increased rapidly in size and became very painful. The urine contained pus. There was a swelling in the perineum beneath the deep layer of the superficial fascia situated to the right of the median line; it was red and painful upon pressure.

Operation, December 14. Median perineal urethrotomy. A narrow stricture was found at the bulbomembranous junction, which was cut internally to No. 30 F. The abscess cavity contained about an ounce of pus, very little if any urine. It communicated by a small opening with the urethra behind the bulb. A small abscess found on right side of membranous urethra which had opened into the urethra; another abscess in the right lobe of the prostate. These were drained into the urethra. The bladder tube was removed the second day. Discharged cured January 11, 1902.

CASE IV.—*Prostatic Abscess with almost Complete Retention of Urine; Operation; Recovery.*

William J. C., aged thirty-two years; Irish; single; admitted March 29, 1902. Fourteen days before admission and three days after exposure he noticed a discharge from urethra. On the third day of the disease he began to have difficulty in passing water, with great frequency, pain and tenesmus. He applied at a dispensary, where he was treated by injections and by massage of the prostate. He had repeated chilly sensations and he thinks some fever. He had never had complete retention, but was obliged to pass water from fifteen to twenty times a day with much pain. Complained of a dull, heavy, aching sensation in

the perineum. He had little apparent urethral discharge, the urine was dark colored. Specific gravity, 1027, contained albumen, large amount of pus, excess of urates.

Rectal touch showed a large, hard, indurated right lateral lobe of the prostate without fluctuation, tender to pressure. Temperature on admission was 99° F. On the following day it rose to 101° F. A small point of fluctuation then was detected near the apex of the prostate. The symptoms continuing, operation was performed April 1. An abscess was found on the right side of the urethra which had not opened into the canal. This was opened and drained into the urethra. Patient was discharged cured on April 16.

CASE V.—*Prostatic Abscess opening spontaneously into the Urethra; Retention of Urine persisting, the Abscess was drained by Operation; Cure.*

James C., aged twenty-nine years; United States; single; admitted January 27, 1902. Two weeks before admission he had first attack of gonorrhœa; no treatment. On the fifth day he began to have frequent urination, burning and stinging pain in the urethra and perineum. He applied at a dispesnary; and was treated by internal medication. Day before admission he had complete retention of urine and increased pain in perineum. On admission he was suffering severely from retention of urine. His temperature was 99.5° F.

Rectal touch showed the prostate enormously swollen, especially on the right side. During this examination an abscess was ruptured into the urethra, causing the discharge of a large quantity of pus. A soft catheter passed easily; thirty-two ounces of urine were withdrawn; it was very cloudy, dense white sediment, acid, large percentage of albumen, no casts. As the retention persisted, operation was performed on January 29, 1902. Exploring the prostatic urethra, a large cavity opening into the canal was found on the right side. The opening was small in size and was near the apex; this was enlarged by the finger. The bladder was drained.

January 31 all drainage was removed.

On February 4 patient developed an epididymitis on the left side, which confined him to bed for about a week. He was discharged on February 25 cured.

CASE VI.—*Relapsing Prostatic Abscess; Retention of Urine; Abscess opening into Urethra during Catheterism; Imperfect Drainage requiring Operation; Recovery.*

C. M., aged twenty-three years; United States; single; admitted February 6, 1904. Four months before had gonorrhœa; for this he was treated by injections. Three weeks before admission symptoms of pain and frequent urination began, resulting in complete retention of urine; he was relieved by catheterism. Two days later he again had retention of urine and was relieved by catheterism. Since then he had had retention of urine twice; relieved by catheterism. Following the passage of the catheter a week before admission, a large quantity of pus was discharged from the urethra.

On admission he had a urethral discharge; urine was cloudy with pus; he had left epididymitis; the prostate was swollen, especially the left side.

Operation on February 7, 1904. Perineal section. The finger found several openings in the mucous membrane of the prostatic urethra which led into abscess cavities; these openings were united by the finger and the abscess drained into the urethra; a hooded perineal tube was inserted, as the hæmorrhage was quite profuse and the perineal wound was packed with gauze.

On February 10 the tube was removed, and for several days there was almost complete vesical incontinence.

On February 17 he passed some urine through urethra.

On February 26 he had perfect control of his urine and passed all of it through the urethra. He was discharged March 15 perfectly well.

NOTE.—One year afterwards this patient was seen. Urine clear; he had perfect control; No. 26 F sound passed easily. Prostate by rectal palpation normal. He had contracted syphilis, and is now under treatment for this malady.

CASE VII.—*Tuberculous (?) Prostatic Abscess; Pericowperitis; Perineal Abscess; Incomplete Operation; Recurrence of Abscess requiring Second Operation; Slow Convalescence; Perineal Fistula.*

F. S., aged seventeen years; single; admitted October 10, 1900. Denies all venereal disease. His present illness began Sep-

tember 1. He had painful urination with pain before and after the act. Seven or eight days later he began to have pain in the perineum, and a small swelling appeared; this had grown progressively larger. On September 15 the frequency of urination increased, and he had partial retention of urine. On admission his temperature was 99° F.

Examination showed in the perineum a median oblong swelling over which the skin was reddened. Distinct fluctuation. The urethra was free from stricture. There was a urethral discharge, which did not contain gonococci, but contained a rod-shaped bacillus resembling the tubercle bacillus.

Operation on October 12. Median perineal section: an abscess was found beneath the deep layer of the superficial fascia. This was opened and drained. Membranous urethra was opened. Examination of prostatic urethra failed to detect any sign of abscess. The tube was removed on second day. Patient did well until the eleventh day after the operation, when an abscess was discovered at the bottom of the perineal wound at the side of the urethra extending towards the groin. This was opened and drained, and on the 25th another abscess was discovered in the ischiorectal fossa. A second operation was performed on October 26. Membranous urethra was reopened; the finger introduced into the prostatic urethra found a large abscess in the left lobe, which communicated with that in the perineum, and there was also suppuration about Cowper's glands. These abscesses were opened into the urethra. An oblique incision was made beginning at the upper margin of the perineal opening and extending towards the left groin, which opened an abscess cavity in this situation; the abscess in the ischiorectal fossa was opened by a separate incision. The abscess cavities were drained and a tube was placed in the bladder. The patient's general condition was unsatisfactory and the wounds were slow in healing. He was discharged on October 29 with a small perineal sinus which had not healed, and through which a few drops of urine escaped at each urination.

CASE VIII.—*Prostatic Abscess and Perineal Abscess; almost Complete Retention of Urine; Abscess opened spontaneously into the Urethra with Inefficient Drainage; Operation; Recovery.*

J. O'R., aged twenty-five years; married; admitted Decem-

ber 6, 1900. He contracted a gonorrhœa in 1894, which lasted for six weeks, and again had a gonorrhœa in 1898, and had had a relapsing urethral discharge ever since. About three weeks before admission he began to have pain in the perineum, which was increased by exercise and on defecation. He had some difficulty in passing water, but never had complete retention of urine. Three or four days later a swelling appeared in the perineum. This gradually increased in size. He had chilly sensations with fever. On admission, temperature was 100° F. Urine was foul, contained large quantity of pus, many large shreds, albumen; specific gravity, 1018. There was in the perineum an ovoid swelling, more marked on the right side. Skin over this was red. Tumor was not very well defined, edges were hard. There was distinct fluctuation. There was no stricture. Right side of the prostate was enlarged and tender. Perineal operation, December 9, 1900. On cutting through the deep layer of the superficial fascia, an abscess was opened containing about eight ounces of pus. Membranous urethra was opened, and a large abscess cavity was found by the finger on the right side of the prostate communicating with the urethra; this was drained. Tube was put in the bladder. Tube and drainage were removed on fourth day. Patient passed his urine through the urethra on the ninth day and made a satisfactory recovery.

CASE OF AN HERMAPHRODITE.

BY DUDLEY P. ALLEN, M.D.,
OF CLEVELAND, OHIO,
Visiting Surgeon to Lakeside Hospital; Professor of Surgery in the Western Reserve University.

THE accompanying illustration is of an hermaphrodite, aged three years. The parents always supposed that the child was a female. Recently a physician had told them that it was a male. Although the child was still too young to have developed marked characteristics indicative of sex, the face appeared to be that of a girl.

An examination of the genitals showed that the child had an organ which presented every appearance of a penis corresponding to the age of the child. There was a perfectly formed glans penis and a prepuce. The prepuce was, however, adherent to the glans penis a little anterior to its base, and could not be retracted so as to uncover the entire gland. There was an hiatus in the prepuce, along the under surface of the glans, as represented in the accompanying illustration. On attempting to lift the penis from its position, it was found to be adherent along its entire lower surface, a deep sulcus extending along its whole length on either side. On separating the tissues from the sides of the penis, they presented the appearance of the labia majora. On lifting the glans penis, an opening was discovered, and under anæsthesia this was found to be large enough to admit the little finger. This opening extended upward like a normal vagina and had a length of about two inches. On inserting a catheter into the meatus it was found that the meatus was just at the opening of what appeared to be the vagina, but that the orifice of the urethra had less tissue between it and the vagina than normal, it being separated from the vagina anteriorly by a thin septum. The child had entire control of the passage of urine during the day, but was said to wet the bed at times at night.

A nasal speculum was inserted into the vagina, and an attempt was made to gain a view of its upper portion. It was found impossible to make a completely satisfactory examination without overdistending the vagina, so that the effort was aban-

doned. With the little finger in the vagina, a mass corresponding in all respects to the cervix could be felt at the top of the vagina, and on bimanual examination a smaller mass could be felt between the finger in the vagina and the hand above the pubes, corresponding in size and form to the uterus.

The conclusion arrived at was that the child had the reproductive organs of the female, that the clitoris had taken on the over-development of the penis, corresponding to it in all respects, except that it was adherent along its entire under surface to the underlying structures, and that the form of the prepuce corresponded, as shown in the picture, to the covering of the clitoris rather than to the prepuce in the male. What effect erections might have upon the organ could not be determined.